

REMARKS

The present filing is responsive to the Office Action.

Summary of the Response

Claims 10-12, 16 and 17 have been amended. Claim 8 have been canceled. Claims 1-7, 18 and 19 have been previously canceled. New claims 20-30 have been added. Claims 9-17 and 20-30 remain pending in this application. Reexamination and reconsideration of the present application as amended are respectfully requested.

Allowable Subject Matter

The Applicant appreciates the Examiner's indication of allowable subject matter in claims 16 and 17. Claims 16 and 17 have been rewritten into independent form, including the limitations of intervening claims. New dependent claims 20-30 have been added to round out the coverage of allowable subject matter.

Claim Objections

Claims 10-12 have been amended to correct the informalities noted by the Examiner.

Claim Rejections

Independent claims 8 and 13 have been rejected as being anticipated by Nakajima (US6,420,758), and rendered obvious by Takehashi (US6,624,473).

Independent claim 8 has been canceled without prejudice.

Independent claim 13 requires: "forming a spacer after step (b) adjacent to the gate that comprises a conductive region which overlies the polycrystalline silicon layer and extends along the gate side wall, comprising depositing a layer of conductive material over the polycrystalline silicon layer and the gate, and selectively etching the deposited layer of conductive material to form the spacer with a first portion overlying the polycrystalline silicon layer and a second portion extending along on the side wall of the gate, wherein the selective etching of the conductive layer is carried out by forming a fillet over the first portion thereof, and selectively etching the conductive layer where not protected by the fillet; and (d) implanting a dopant into the polycrystalline silicon layer using the gate and the spacer as a mask to form a source or drain region, such that the spacer overlies an LDD region in the polycrystalline silicon layer between the source or drain region and the channel". Nakajima does not anticipate the process recited in claim 13, and Takehashi does not render obvious the process recited in claim 13.

Nakajima

Nakajima did not specifically disclose the use of fillets to selectively etch a layer of conductive material to form the spacer with a first portion overlying the polycrystalline silicon layer to define the LDD region. Referring to Fig. 16 in Nakajima, the Examiner deemed the resist mask 1601 to correspond to the recited fillet, and the second gate electrode 1603 to correspond to the recited spacer. Applicant disagrees.

Fig. 16A in Nakajima is discussed at col. 17, lines 26+, as Embodiment 7. According to this section of Nakajima, Fig. 16A picks up from the process according to Embodiment 1 illustrated in Figs. 3A to 3D ("The second gate electrode is formed according to Embodiment 1.

In this embodiment, the n-type impurity region was formed while leaving the resist mask 1601 used to form the gate electrode. (FIG. 16(A))" (Nakajima, at col. 17, lines 33-36.) Fig. 16A and Fig. 16B refers to the etching of the second gate electrode 1603 after the second gate electrode 1603 has been used to form the LDD region (as shown in Fig. 3D), by isotropic etching to form the undercut below the resist mask 1601 as show in Fig. 16B. Hence, Fig. 16A shows the state in which the LDD region has already been formed, with the resist mask 1601 used to etch the underlying second gate electrode 1603. Therefore, Nakajima does not undertake the recited "implanting a dopant into the polycrystalline silicon layer using the gate and the spacer as a mask to form a source or drain region, such that the spacer overlies an LDD region in the polycrystalline silicon layer between the source or drain region and the channel".

Accordingly, independent claim 13 and all claims dependent therefrom are not anticipated by Nakajima.

Takehashi

The Examiner conceded in the Office Action that Takehashi does not teach the selective etching of the conductive layer is carried out by forming a fillet over the first portion thereof. Applicant submits that Takehashi does not render obvious such recited step.

Referring to Fig. 12 in Takehashi, the Examiner deemed the layer 43 to correspond to the recited spacer, and the Mo layer 430 to correspond to the recited layer conductive material. Referring to Fig. 23, and col. 25, lines 22+, the resist film 13 is used to selectively etch the upper gate electrode film (aluminum alloy film) 410 to form the upper gate electrode 41. The resist film 13 undergoes UV application to shape the mask used to define the upper gate electrode. As

shown in Fig. 23(c), the resist film 13 initially covers the entire underlying upper gate electrode film 410, prior to shaping it to form the mask for defining the upper gate electrode 41.

Accordingly, for Fig. 12(h), the Mo Layer 430 would be initially entirely covered by a masking film (not shown), which masking film would be shaped to form the mask for defining the upper gate electrode 43. Accordingly, Takehashi effectively teaches away from the use of a fillet to form selective etch an underlying conductive layer. Therefore, Takehashi does not render obvious claim 13.

New Claims

New dependent claims 20-30 have been added to round out the coverage of the present invention. These dependent claims adds further limitations that further distinguish the invention from the cited references.

For example, new dependent claim 28 recites "forming additional layers over the fillet after step (d), so that the fillet remains within the TFT finally formed"; new dependent claim 29 recites "retaining the fillet over the spacer after step (d), so that the fillet remains within the TFT finally formed"; and new dependent claim 30 recites "the fillet remains over the spacer after step (d) and within the TFT finally formed". These recited structures are illustrated in Fig. 2 in the present application. Even if the masks in Nakajima and Takehashi are deemed to correspond to the recited fillet, however neither Nakajima nor Takehashi discloses retaining the fillet on the spacer so that the fillet remains within the TFT finally formed. In both Nakajima and Takehashi, the masks are removed and do not form a part of the TFT finally formed.


CONCLUSION

In view of all the foregoing, Applicant submits that the claims pending in this application are patentable over the references of record and are in condition for allowance. Such action at an early date is earnestly solicited. **The Examiner is invited to call the undersigned representative to discuss any outstanding issues that may not have been adequately addressed in this response.**

The Assistant Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required by this transmittal and associated documents, or to credit any overpayment to **Deposit Account No. 501288** referencing the attorney docket number of this application.

Respectfully submitted,

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